

VOICE ANNOUNCED CALLER IDENTIFICATION FEATURES AND METHODS THEREFOR

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FIELD OF THE INVENTIONS

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The present inventions relate generally to mobile wireless communication devices, and more particularly hands-free caller identification features and methods therefor.

BACKGROUND OF THE INVENTIONS

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Many communication service providers plans include offer a call-waiting feature. In operation, when an incoming telephone call is received during a call with another party, the call-waiting feature prompts the party receiving the incoming call with an audible tone to indicate that another call is waiting. The receiving party may then answer the incoming call, for example by depressing the flash key, or disregard it. The call waiting tone is usually at least a couple of times.

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Communication service provider plans also offer a caller-ID feature that visually displays the number and in some instances the name of the calling party on a visual display device on or coupled to the phone of party receiving the call.

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When a call-waiting signal is generated, it is common for users also having a caller-ID feature to first identify the caller waiting before answering the call. Unwanted calls, for example from solicitors are often ignored.

In cellular handsets having both call-waiting and caller-ID features, during a call, users must remove the cellular handset from their ear to see the name and or number of the caller waiting, since the caller-ID information is

displayed on the handset. In a cellular handset having a hands-free kit, for example an ear bud with a microphone, the user must locate and view the cellular handset display to identify the caller waiting.

It is desirable to provide handsfree call-waiting features, especially in mobile wireless communications devices, for example cellular telephones.

The various aspects, features and advantages of the present invention will become more fully apparent to those having ordinary skill in the art upon careful consideration of the following Detailed Description of the Invention with the accompanying drawings described below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is exemplary mobile wireless communication device.

FIG. 2 is a process flow diagram according to the present invention.

DETAILED DESCRIPTION OF THE INVENTIONS

FIG. 1 is an exemplary mobile wireless communication device 10, for example a cellular telephone, or a pager, or a wireless enabled personal digital assistant, or a wireless enabled laptop computer por some other wireless communication device.

The device 10 comprises generally a wireless communication receiver 20 for receiving wireless communications. In other embodiments, except perhaps some pagers, the receiver 20 also includes a transmitter for transmitting wireless communications.

5 In some embodiments, the device 10 includes a memory 30 for storing one or more communication addresses and corresponding audio clips associated therewith. In cellular wireless handsets, the communication addresses are telephone numbers and the audio clips are names or some other unique indicium associated therewith. In other embodiments, the communication address may be a pager, or an e-mail address, or a network address, including a universal resource locator (URL).

10 In one embodiment, the audio clips correspond to or are uniquely associated with corresponding communication addresses stored in the communication device. The audio clips are, for example, the communication addresses or the names of the owner or user of the communication addresses.

15 The uniqueness of the audio clip need extend only to a small universe of communication addresses stored in the device. In other embodiments, the audio clips may be grouped, for example, communications from work related origins are all associated with the same sound clip "work", communications from home or family origins are all associated with the same sound clip "family", etc.

20 The audio clips may be recorded directly at the device or recorded and stored at some other device, like a computer, and then downloaded onto the communications device 10 via an input 40 on the device for storage in memory thereof. The input may be, for example, an infrared port or a hardwire input connector, or a microphone input. The voice clips may also be downloaded onto the device over a wireless interface, for example via packet data communications. In cellular handsets having voice dialing capabilities, the same stored audio clips may be used both for voice dialing and caller announcement features.

25 The communication device 10 also includes a processor 50 coupled to the memory and to an audio output 60, for example a speaker or a headphone output of the communications device. In another embodiment, the audio output is

an audio signal output pin or pins, which may be part of a standard or proprietary electrical connector, connectable to an audio system, for example an automotive stereo sound system via an audiocassette adapter, wherein the audio is played over a sound system separate from the communications device.

5 The processor 50 plays an audio clip at the audio output 60 when a communication from an address associated with the audio clip is received by the communication device 10. In some embodiments, the communication address and/or some other indicium, like the caller's name, is also displayed on a display 70 of the device.

10 In the process block diagram of FIG. 2, an incoming communication is received at a mobile wireless communication device at block 202. When the incoming communication is received, at block 204, an audible announcement is provided on an audio output of the mobile wireless communication device associated with the incoming communication, thereby indicating to the user the identity of the communication address or name of the party originating the incoming call.

15 In some instances, the incoming communication may be received during an on-going communication or call, as often occurs in cellular telephone handsets. To alert the user that a new call is waiting, the audible announcement is provided on the audio output during the on-going communication. As discussed above, the audible announcement uniquely associated with the incoming communication, for example a name associated with the calling party.

20 During on-going calls, the audible announcement is preferably a relatively quiet background announcement that does not overly distract the user's attention from the on-going conversation. Thus in embodiments, where the voice announcement is made during an on-going call, the volume of the voice announcement may be reduced for background announcement. In FIG. 2, a

determination is made at conditional block 206 whether there is a call in-progress, and if so, the background announcement mode is enabled at block 208.

In the absence of an on-going call, the audible announcement may replace or complement some other call-indicating signal, for example a ring and/or vibration, typical of cellular handsets. The voice announcement in this mode may be made through a speaker of the device or at an audio output of the communications device for coupling to a headset or to an external speaker, for example to an automotive audio system via a cassette adapter.

When a call is received from an unidentified party, for example from a telephone number for which there is no associated audio clip, then the a default announcement may be played, for example “private call”. In FIG. 2, at block 210, at determination is made whether there exists an audio clip corresponding to or associated with the caller. If so, the audio clip is played at block 204. If there is no audio clip associated with the caller, then a default message is played at block 212.

While the present inventions and what is considered presently to be the best modes thereof have been described in a manner that establishes possession thereof by the inventors and that enables those of ordinary skill in the art to make and use the inventions, it will be understood and appreciated that there are many equivalents to the exemplary embodiments disclosed herein and that myriad modifications and variations may be made thereto without departing from the scope and spirit of the inventions, which are to be limited not by the exemplary embodiments but by the appended claims.

What is claimed is: